

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

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**Listing of claims:**

1. (Currently amended) A prosthetic heart valve, comprising:  
a flexible stent having alternating inflow cusps and outflow commissures;  
10 a plurality of flexible leaflets attached to the stent so as to form a one-way valve within the stent; and  
a suture-permeable connecting band attached to the stent providing outer free margins in the assembled heart valve and a flexible interface for suturing the valve to surrounding host tissue;  
15 wherein the connecting band closely conforms to the alternating stent cusps and commissures and defines an axial gap along the commissures opening in the inflow direction for enhancing freedom of movement of the stent cusps, and  
wherein the stent has bioresorbable commissures and is designed to separate the valve into individual leaflets after implant, and the connecting band is discontinuous at  
20 the stent commissures.

2. (Original) The prosthetic heart valve of claim 1, wherein there are three stent cusps and three commissures.

25 3. (Original) The prosthetic heart valve of claim 1, wherein the connecting band includes three cusp portions separated by three upstanding commissure portions, and wherein the cusp portions each define an inner generally radially oriented ledge for receiving and supporting the stent cusps.

4. (Previously presented) The prosthetic heart valve of claim 3, wherein the outer free margins of the connecting band are angled upwardly and outwardly with respect to a central axis of the connecting band at each cusp portion and gradually re-align to be parallel to the central axis along the commissure portions.

5. (Currently amended) The connecting band of claim 1, wherein the stent comprises individual stent members joined with bioresorbable material at abutting commissure regions to form the bioresorbable commissures ~~has bioresorbable commissures and is designed to separate the valve into individual leaflets after implant, and the connecting band is discontinuous at the stent commissures.~~

6. (Original) The prosthetic heart valve of claim 1, wherein the stent comprises a fabric covered rod-like structure.

7. (Original) The prosthetic heart valve of claim 6, wherein the fabric covering closely surrounds the rod-like structure and exhibits a flap projecting outward therefrom substantially the entire length of the stent cusps and commissures.

8. (Original) The prosthetic heart valve of claim 7, wherein the flap has a width that varies along the cusps and commissures of the stent, the flap being narrower in the cusps.

9. (Original) The prosthetic heart valve of claim 7, wherein the leaflets each have an arcuate cusp edge and a coapting edge, and wherein the connecting band attaches along the fabric covering flap and the cusp edges of the leaflets are attached between the band and the stent flap.

10. (Previously presented) The prosthetic heart valve of claim 7, wherein the connecting band attaches along the fabric covering flap.

11. (Canceled)

12. (Canceled)

13. (Currently amended) A highly flexible prosthetic heart valve, consisting essentially of:

a flexible elongated stent formed generally in a tube with cusp regions on an inflow end alternating with commissure tips on an outflow end to form an undulating periphery, the stent having commissure regions on either side of each cusp region wherein the commissure tips join adjacent commissure regions and the juxtaposed commissure regions define axial spaces therebetween;

a plurality of flexible leaflets attached to the stent so as to form a one-way valve within the stent; and

a suture-permeable band having a shape that mimics the alternating stent cusps and commissures and is attached along the undulating periphery of the stent so as to project outward from the stent along the stent cusps and commissures and provide an interface between the assembled valve and surrounding host tissue, and

wherein the stent has bioresorbable commissures and is designed to separate the valve into individual leaflets after implant, and the suture-permeable band is discontinuous at the stent commissures.

14. (Original) The prosthetic heart valve of claim 13, wherein the band includes arcuate cusp portions generally conforming to the stent cusp regions and commissure portions therebetween each having an inverted U-shape to define a downwardly opening gap that enhances flexibility of the valve.

15. (Original) The prosthetic heart valve of claim 14, wherein the commissure portions of the band are generally planar and axially aligned, and the cusp portions of the band each include an outwardly angled portion and an inwardly angled ledge sized to support the stent cusp regions.

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16. (Original) The prosthetic heart valve of claim 15, wherein the inwardly angled ledges of the cusp portions of the band are sized to support the stent cusp regions.

17. (Original) The prosthetic heart valve of claim 15, wherein the suture-permeable band has a free margin along the undulating periphery for connecting the heart valve to an anatomical orifice.

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18. (Original) The prosthetic heart valve of claim 13, wherein the axial spaces are generally triangular and gradually increase in size from the attached commissure tips to the diverging cusp regions.

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19. (Canceled)

20. (Canceled)

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21. (Currently amended) The prosthetic heart valve of claim 13, wherein the stent comprises individual stent members joined with bioresorbable material at abutting commissure regions to form the bioresorbable commissures ~~has bioresorbable commissures and is designed to separate the valve into individual leaflets after implant, and the suture permeable band is discontinuous at the stent commissures.~~

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22. (Original) The prosthetic heart valve of claim 13, further comprising a fabric covering on the stent that exhibits a flap projecting outward therefrom substantially the entire length of the undulating periphery.

5 23. (Original) The prosthetic heart valve of claim 22, further comprising a plurality of flexible leaflets attached to the stent so as to form a one-way valve within the stent wherein the leaflets each have an arcuate cusp edge and a coapting edge, and wherein the suture-permeable band attaches along the fabric covering flap and the cusp edges of the leaflets are attached between the band and the stent flap.

10 24-30. (Canceled)

31. (Previously presented) A prosthetic heart valve, comprising:  
a flexible stent having alternating inflow cusps and outflow commissures;  
15 a plurality of flexible leaflets attached to the stent so as to form a one-way valve within the stent; and  
a suture-permeable connecting band attached to the stent providing an interface between the valve and surrounding host tissue;  
wherein the connecting band conforms to the alternating stent cusps and  
20 commissures and defines an axial gap along the commissures opening in the inflow direction for enhancing freedom of movement of the stent cusps, and  
wherein the stent has bioresorbable commissures and is designed to separate the valve into individual leaflets after implant, and the connecting band is discontinuous at the stent commissures.

25 32. (Previously presented) The prosthetic heart valve of claim 31, wherein the connecting band includes cusp portions separated by upstanding commissure portions, and

wherein the cusp portions each define an inner generally radially oriented ledge for receiving and supporting the stent cusps.

33. (Previously presented) The prosthetic heart valve of claim 31, wherein the  
5 connecting band includes cusp portions separated by upstanding commissure portions and an outer free margin along a periphery thereof for connecting the heart valve to an anatomical orifice.

34. (Previously presented) The prosthetic heart valve of claim 33, wherein the  
10 connecting band outer free margin angles upwardly and outwardly with respect to a central axis of the connecting band at each cusp portion and gradually re-aligns to be parallel to the central axis along the commissure portions.

35. (Previously presented) The prosthetic heart valve of claim 31, wherein the stent  
15 comprises a fabric covered rod-like structure, wherein the fabric covering closely surrounds the rod-like structure and exhibits a flap projecting outward therefrom substantially the entire length of the stent cusps and commissures.

36. (Previously presented) The prosthetic heart valve of claim 35, wherein the leaflets  
20 each have an arcuate cusp edge and a coapting edge, and wherein the connecting band attaches along the fabric covering flap and the cusp edges of the leaflets are attached between the connecting band and the stent flap.

37. (Previously presented) A prosthetic heart valve, comprising:  
25 a flexible stent having alternating inflow cusps and outflow commissures, wherein the stent comprises a fabric covered rod-like structure, wherein the fabric covering closely surrounds the rod-like structure and exhibits a flap projecting outward therefrom substantially the entire length of the stent cusps and commissures, and has a width that

varies along the cusps and commissures of the stent, the flap being narrower in the cusps;  
a plurality of flexible leaflets attached to the stent so as to form a one-way valve  
within the stent; and  
a suture-permeable connecting band attached to the stent providing an interface  
5 between the valve and surrounding host tissue;  
wherein the connecting band conforms to the alternating stent cusps and  
commissures and defines an axial gap along the commissures opening in the inflow  
direction for enhancing freedom of movement of the stent cusps.

10 38. (Previously presented) The prosthetic heart valve of claim 37, wherein the  
connecting band includes cusp portions separated by upstanding commissure portions, and  
wherein the cusp portions each define an inner generally radially oriented ledge for receiving and  
supporting the stent cusps.

15 39. (Previously presented) The prosthetic heart valve of claim 37, wherein the  
connecting band includes cusp portions separated by upstanding commissure portions and an  
outer free margin along a periphery thereof for connecting the heart valve to an anatomical  
orifice.

20 40. (Previously presented) The prosthetic heart valve of claim 39, wherein the  
connecting band outer free margin angles upwardly and outwardly with respect to a central axis  
of the connecting band at each cusp portion and gradually re-aligns to be parallel to the central  
axis along the commissure portions.

25 41. (Previously presented) The prosthetic heart valve of claim 37, wherein the leaflets  
each have an arcuate cusp edge and a coapting edge, and wherein the connecting band attaches  
along the fabric covering flap and the cusp edges of the leaflets are attached between the  
connecting band and the stent flap.

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42. (Previously presented) The prosthetic heart valve of claim 1, wherein the stent is highly flexible and permits relative radial cusp movement.

5 43. (Currently amended) The prosthetic heart valve of claim 42 ~~24~~, wherein the stent is made of Nitinol.

44. (Previously presented) The prosthetic heart valve of claim 13, wherein the stent is highly flexible and permits relative radial cusp movement.

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45. (Currently amended) The prosthetic heart valve of claim 44 ~~26~~, wherein the stent is made of Nitinol.

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